

Irx4 Cas9-KO Strategy

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Project Overview

Project Name

Irx4

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Irx4* gene. The schematic diagram is as follows:



- The *Irx4* gene has 2 transcripts. According to the structure of *Irx4* gene, exon2-exon6 of *Irx4-201* (ENSMUST00000022095.9) transcript is recommended as the knockout region. The region contains all of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Irx4* gene. The brief process is as follows: CRISPR/Cas9 system w

- According to the existing MGI data, Homozygotes for a targeted null mutation exhibit abnormal ventricular gene expression followed by cardiomyopathy with hypertrophy and impaired contractile function.
- The *Irx4* gene is located on the Chr13. If the knockout mice are crossed with other mice strains to obtain double gene positive homozygous mouse offspring, please avoid the two genes on the same chromosome.
- This Strategy is designed based on genetic information in existing databases. Due to the complexity of biological processes, all risk of the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Irx4 Iroquois homeobox 4 [Mus musculus (house mouse)]

Gene ID: 50916, updated on 5-Mar-2019

Summary



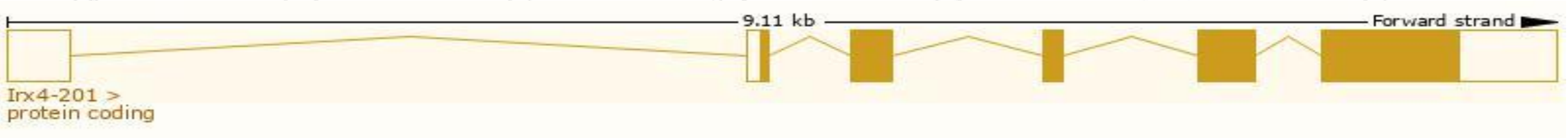
Official Symbol	Irx4 provided by MGI
Official Full Name	Iroquois homeobox 4 provided by MGI
Primary source	MGI:MGI:1355275
See related	Ensembl:ENSMUSG000000021604
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Expression	Biased expression in heart adult (RPKM 4.3), limb E14.5 (RPKM 1.7) and 9 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

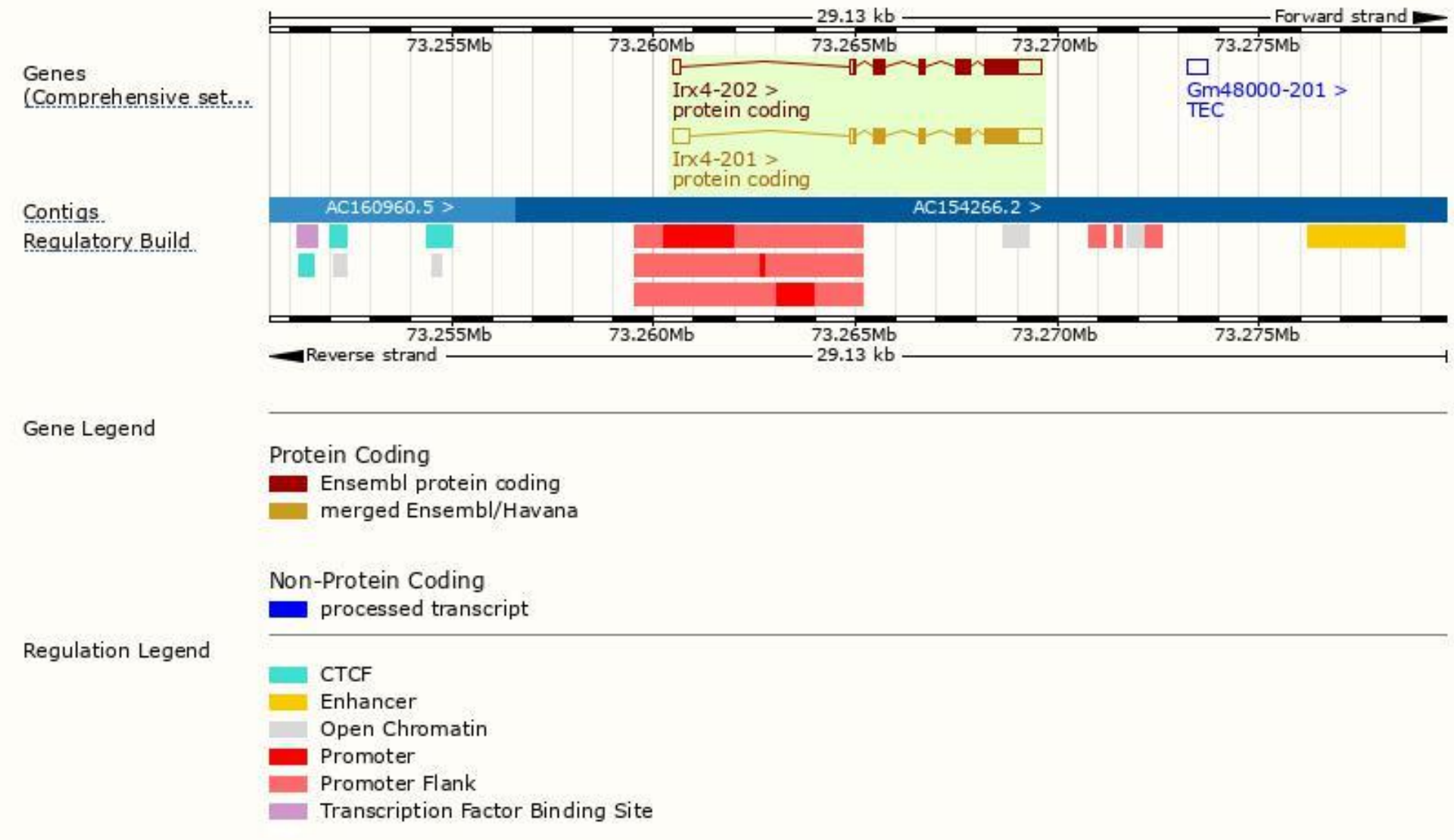
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Irx4-201	ENSMUST00000022095.9	2589	515aa	Protein coding	CCDS26629	Q9QY61	TSL:1 GENCODE basic APPRIS P1
Irx4-202	ENSMUST00000176684.7	2384	515aa	Protein coding	CCDS26629	Q9QY61	TSL:5 GENCODE basic APPRIS P1

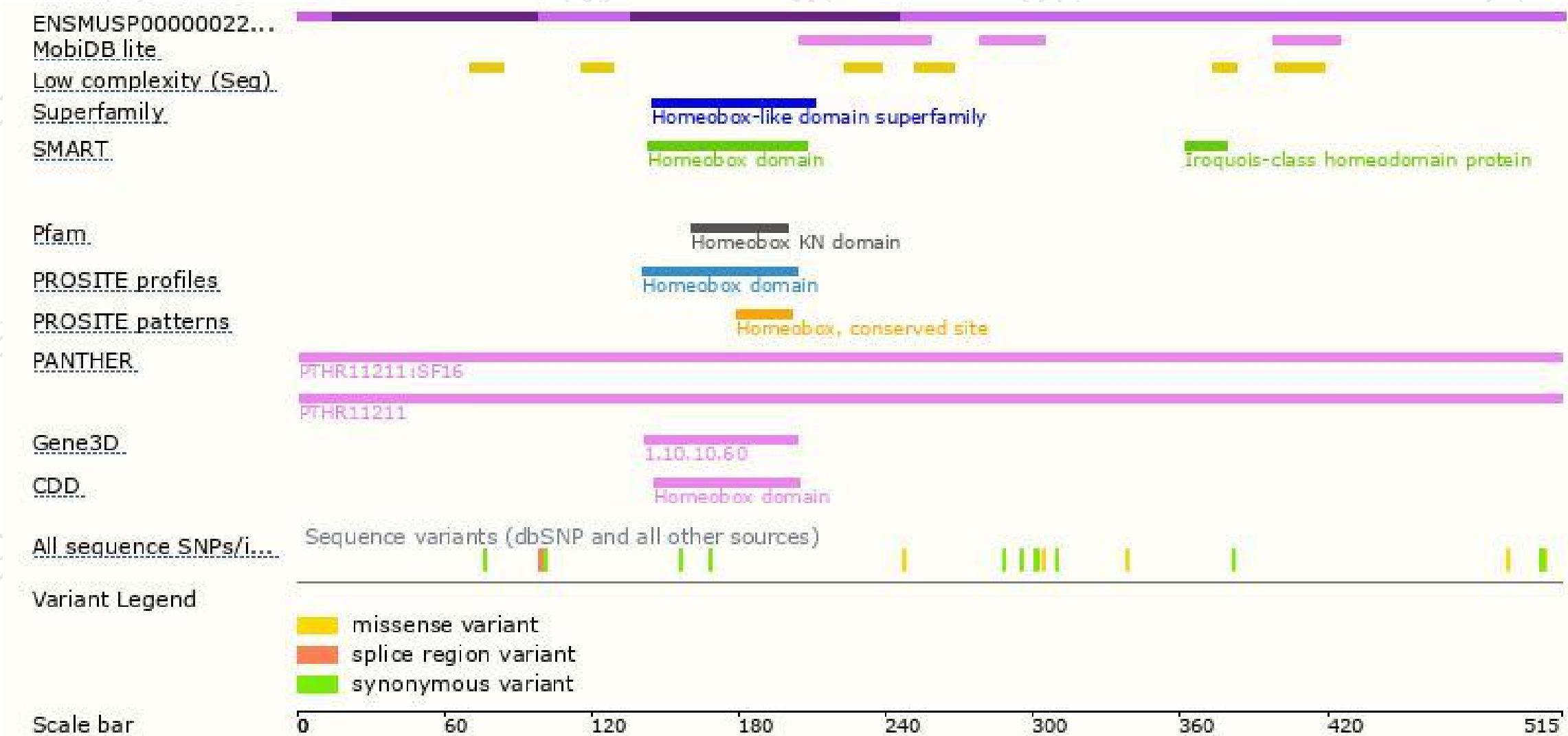
The strategy is based on the design of *Irx4-201* transcript,The transcription is shown below



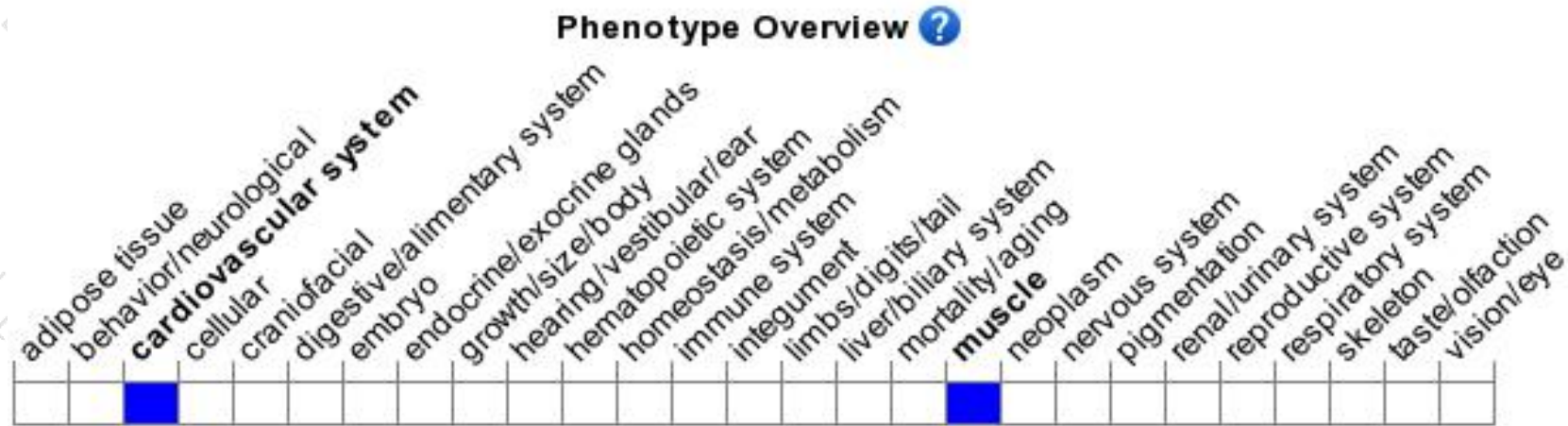
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

According to the existing MGI data, Homozygotes for a targeted null mutation exhibit abnormal ventricular gene expression followed by cardiomyopathy with hypertrophy and impaired contractile function.

If you have any questions, you are welcome to inquire.

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